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United States Court of Appeals For The Federal Circuit

IN RE JOHN A. WHEATLEY and WALTER J. SCHRENK

Appeal from the United States Patent and Trademark Office,
Board of Patent Appeals and Interferences in
Appeal No. 2005-2515, Patent Application No. 09/911,532

BRIEF OF APPELLANTS

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CERTIFICATE OF INTEREST

Counsel for the Appellants certifies the following:

1. **The full name of every party represented by me is:**

   JOHN A. WHEATLEY, WALTER J. SCHRENK

2. **The name of the real party in interest represented by me is:**

   3M INNOVATIVE PROPERTIES COMPANY

3. **All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party represented by me are:**

   3M Innovative Properties Company is a wholly owned subsidiary of 3M Company. There is no parent corporation of 3M Company. There is no publicly held company that owns 10 percent or more of the stock of 3M Company.

4. **The names of all law firms and the principals or associates that appeared for the party now represented by me in the United States Patent and Trademark Office or are expected to appear in this Court are:**

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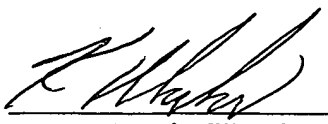

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STATEMENT OF RELATED CASES

Pursuant to Federal Rule of Appellate Procedure 47.5, counsel for Appellants states that no other appeal from the same proceeding in the United States Patent and Trademark Office was previously before this Court or any other appellate court. No other case is known to counsel to be pending in this Court or any other court that will directly affect or be directly affected by this Court's decision in the pending appeal.

STATEMENT OF JURISDICTION

The United States Patent and Trademark Office, Board of Patent Appeals and Interferences had jurisdiction over this patent application pursuant to 35 U.S.C. § 134. This Court has jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(4)(A). This appeal for review is timely, because it was filed within the time provided under 35 U.S.C. § 141 from the Decision on Appeal of the Board of Patent Appeals and Interferences dated January 30, 2006.

STATEMENT OF THE ISSUE

Whether the United States Patent and Trademark Office Board of Patent Appeals and Interferences erred in affirming the Examiner's obviousness rejections pursuant to 35 U.S.C. § 103(a) of claims 30 and 32-35 of Patent Application Serial No. 09/911,532, each pending claim of which is directed to a "multilayer interference film comprising alternating layers of at least a first and second diverse polymeric material" wherein one of the materials "comprises a polymer selected from the group consisting of polyethylene naphthalate and a copolymer of ethylene naphthalate," when: (1) the primary cited reference, Rogers, U.S. Patent No. 3,610,729, mentions nothing at all about polyethylene naphthalate or copolymers of ethylene naphthalate; (2) the Board failed to cite substantial evidence supporting any motivation, suggestion or teaching to combine Rogers with either of the secondary Utsumi references, which merely describe some unrelated advantageous properties of polyethylene naphthalate in a different context; and (3) the Board failed to cite any evidence, much less substantial evidence, showing how in view of the fundamental differences between the primary and secondary references, one skilled in the art would have had a reasonable expectation of success that combining the references would lead to the claimed invention?

STATEMENT OF THE CASE

This is an appeal from a Decision on Appeal (A0001-A0009) of the Board of Patent Appeals and Interferences (the "Board") of the United States Patent and Trademark Office (the "PTO"). The Board affirmed the Examiner's obviousness rejections of claims 30 and 32-35 of Patent Application Serial No. 09/911,532 (the "Application") pursuant to 35 U.S.C. § 103(a). (A0007)

In its Decision on Appeal, the Board cited the same combination of prior art references to affirm in full the Examiner's rejections of all the pending claims in the Application: United States Patent No. 3,610,729 ("Rogers"), in view of United States Patent No. 4,756,953 ("Utsumi '953") or United States Patent No. 4,799,772 ("Utsumi '772"). (A0002, A0007) Appellants then filed a timely Notice of Appeal to this Court. (A0181-82)

STATEMENT OF THE FACTS

I. Drs. Wheatley and Schrenk's Invention

On July 24, 2001, Drs. John A. Wheatley and Walter J. Schrenk filed a patent application for a multilayer optical film interference film comprising alternating layers of at least two different polymeric materials. (A0016-42) One of the layers comprises polyethylene naphthalate ("PEN") or a copolymer of ethylene naphthalate. (A0043)

The object of the invention is to provide an improved multilayer birefringent interference polarizer fabricated to exhibit desired optical properties. (A0020, A0021, A0027) The multilayer film is designed to be fabricated from readily available materials, including PEN, using established coextrusion techniques. (A0021, A0027, A0029-30)

Prior to Drs. Wheatley and Schrenk's invention of this improved multilayer optical interference film, multilayer optical films required the use of specific highly birefringent polymers, (A0020-0021), which limited the design and polarization characteristics of the prior art films. (A0025) The invention met the need to provide a multi-layered birefringent interference polarizer sheet or film that, by using PEN in one of the alternating layers, can be fabricated from readily available materials using established coextrusion techniques. (A0024-25, A0027, A0029-30) PEN has a negative stress optical coefficient, and by alternating layers of PEN with layers of a material that has a positive stress optical coefficient, the resultant refractive index mismatch when the materials are oriented achieves polarization of selected wavelengths of light by constructive optical interference. (A0023-24, A0033)

In addition to the polymeric materials chosen for the alternating film layers, the number of layers, degree of orientation, layer thicknesses, and optional use of pigments or dyes all can be used to provide a polarizer having the desired optical

properties for a particular end use. (A0025) One exemplary end use is on the windshield of an aircraft or vehicle with a "heads-up" display. (A0034)

II. The Claims on Appeal

Claims 30 and 32-35 are at issue in this Appeal. Each claim recites a multilayer interference film comprising alternating layers of at least a first and second diverse polymeric material, wherein one of the materials comprises a polymer selected from the group consisting of polyethylene naphthalate and a copolymer of ethylene naphthalate. (A0001-2, A0043) Claim 30, the sole independent claim, is representative:

> **30.** A multilayer interference film comprising alternating layers of at least a first and second diverse polymeric material, the alternating layers having a refractive index mismatch in at least a first plane perpendicular to the film and having layer thicknesses suitable to reflect light over a range of wavelengths, wherein one of the first and second diverse polymeric materials comprises a polymer selected from the group consisting of polyethylene naphthalate and a copolymer of ethylene naphthalate.

III. The Cited Prior Art

As explained above, the Board affirmed the Examiner's obviousness rejections of claims 30 and 32-35 based on the combination of Rogers (A0183-88) with Utsumi '953 (A0189-97) or Utsumi '772. (A0198-202)

A. Rogers, United States Patent No. 3,610,729

Rogers is directed to multilayered films for light polarizers. (A0185) The reference discusses the types and optical thicknesses of materials that may be used in alternating layers to provide the polarizer with various optical properties. (A0185-86) Coextrusion and subsequent stretch orientation is the preferred method of making the claimed multilayer polarizers. (*Id.*) Rogers lists a number of polymers that are suitable for use in the multilayered film, (A0185), and specifically discusses various polymers suitable for coextrusion:

> Certain materials readily lend themselves to the coextrusion process and can also be rendered birefringent. These materials include polystyrene polymethylmethacrylate, polysulfone, poly(para-xylylene) and polyethylene-terephthalate.

(A0186) Rogers' sole example describes a multilayer film of coextruded polystyrene and polymethyl-methacrylate. (A0187)

Rogers says nothing about PEN. Rogers says nothing about single layer films. Nor does it make any mention of the selection of materials to improve the heat resistance, heat shrinkage ratio or mechanical properties of the multilayer polarizer.

B. Utsumi, United States Patent Nos. 4,756,953 and 4,799,772.

In contrast to Rogers (and the claims at issue), the Utsumi references do not discuss multilayer polarizing films. Rather, Utsumi '953 describes single layer films

used for polarizing plates that contain a dichroic dyestuff, (A0190), and Utsumi '772 describes single layer films used for liquid crystal panel substrates. (A0199)

For both of these applications, the Utsumi references disclose the use of a single layer of PEN in place of prior art single layer polyethylene terephthalate ("PET") films. (A0190, A0199) Utsumi does not teach or suggest that PEN can be used as a substitute for PET generally. Rather, Utsumi discusses particular advantages in using PEN instead of PET in the specific single layer films described in the references, including improved heat resistance, heat shrinkage ratio, mechanical properties, and degree of polarization. (A0190, A0193-0194, A0199-201)

In sum, the nature of the problem to be solved by the Utsumi references is considerably different from the nature of the problem to be solved by the Rogers reference. The Utsumi references solve the problem of lack of heat resistance and improve other properties of monolithic, single layer PET films by replacing PET with PEN. *See* A0190 (Utsumi '953, col. 1, lines 59-62: "It is an object of the present invention to provide a film for polarizing plates which is superior in weather resistance, tear strength and heat resistance to a stretched polyethylene terephthalate film . . . . "); A0199 (Utsumi '772, col. 2, lines 4-7: "It is an object of the present invention to provide a film for liquid crystal panel substrates which is superior in weather resistance, tear strength and heat resistance to a stretched

polyethylene terephthalate film . . . ."). The objective of Rogers, on the other hand, is to select coextrudable, birefringement materials for multilayer polarizer films that when combined will provide desired polarization properties.

IV. The Board Decision

The Board affirmed the Examiner's rejections that each of claims 30 and 32-35 would have been obvious to one of ordinary skill in the art because each claim element is found in Rogers combined with either of the Utsumi references. (A0007) According to the Board, because Rogers discloses PET as one of several polymers suitable for a layer of a multilayer polarizing film, and because the Utsumi references disclose certain advantages of PEN over PET for use in certain single layer films, it would have been obvious to one of ordinary skill in the art to use PEN in place of a PET layer of Rogers to make the multilayer interference film of claims 30 and 32-35. (A0006-7)

The Board found the requisite motivation to combine the cited references in a conclusory manner, citing "express suggestions in both Utsumi references." (A0007) According to the Board, these "express suggestions" were improved heat resistance, heat shrinkage ratio, mechanical properties, and degree of polarization taught as particular advantages in using PEN instead of PET in the Utsumi references. (A0006-7) The Board never explained how one skilled in the art, and without the benefit of hindsight, would have been motivated to substitute PEN for

PET in the multilayer film of Rogers, when Rogers says nothing about the need for improved heat resistance, heat shrinkage ratio, mechanical properties or degree of polarization.

In their brief to the Board, (A0150-0156), Appellants explained that the applications discussed in the Rogers and Utsumi references are very different, and that the corresponding features, requirements and properties needed for the single layer films of the Utsumi references are very different from the multilayer films of Rogers. (A0153-0154) The Board did not specifically address this argument that due to the very different nature of the problems addressed in the Rogers and Utsumi references, one skilled in the art would not have been motivated to combine their teachings, and would not have had a reasonable expectation of success in doing so. The only argument advanced by Appellants that the Board did address was the argument that because Appellants' claimed films are preferably coextruded, one skilled in the art would not be motivated to combine the multilayer films of Rogers with the single layer films of the Utsumi references. The Board summarily dismissed this argument as seeking to distinguish the cited references by relying on process limitations that are not recited in the pending article claims. (A0006, A0007)

SUMMARY OF THE ARGUMENT

The Board failed to meet its burden to establish a *prima facie* case of obviousness, based on factual determinations supported by substantial evidence, for two separate and independent reasons. ***First***, the Board's factual finding that the requisite motivation to combine Rogers with either of the two Utsumi references is found in "express suggestions in both Utsumi references" is not supported by substantial evidence. The Utsumi references discuss certain specific benefits of the use of single layer PEN films in two specific applications – polarizing plates containing dichroic dyestuff and liquid crystal panel substrates – without any indication that PEN could be used as a substitute for PET in any other application (much less a multilayer polarizer such as Rogers, with its careful selection of alternating layers of diverse polymeric materials). Indeed, the specific advantages of PEN discussed in the Utsumi references, such as improved heat resistance, are not even mentioned as considerations in Rogers, because the applications and corresponding material requirements of the two references are so markedly different. Moreover, a key problem facing Drs. Wheatley and Schrenk was the need for an improved multilayer polarizer that could be fabricated using established coextrusion techniques. In view of this problem, there was no motivation whatsoever to look to the Utsumi references, which deal solely with monolayer films and hence provide no teachings on the subject of coextrusion.

These fundamental differences between the teachings of the Rogers and the Utsumi references demonstrate that the Board's finding of "express suggestions" to combine them is not supported by substantial evidence.

Second, the Board failed to cite any substantial evidence supporting a reasonable expectation of success in combining Rogers and Utsumi, despite the fact that Appellants raised this issue in their brief to the Board in support of the argument that their claims are nonobvious. In view of the markedly different applications and corresponding different features and requirements of the Utsumi references relative to the Rogers reference, and the considerations arising from the desire to have the claimed film fabricated by coextrusion, the Utsumi references simply provide no guidance about whether PEN would work in the claimed construction, and at most it would have been "obvious to try" PEN. Based on this record, one skilled in the art at the time of Appellants' invention would not have had a reasonable expectation of success in combining Rogers with either of the Utsumi references.

ARGUMENT

I. Standard of Review

A claim is unpatentable if the differences between it and the prior art are such that the claimed subject matter as a whole would have been obvious at the

time it was made to a person having ordinary skill in the pertinent art. 35 U.S.C. § 103(a) (2000); *Graham v. John Deere Co.*, 383 U.S. 1, 13-14, 86 S.Ct. 684, 691-92 (1966). The Board bears the burden of establishing a *prima facie* case of obviousness based upon the prior art. *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998); *In re Piasecki*, 745 F.2d 1468, 1471-72 (Fed. Cir. 1984).

A determination whether a claim would have been obvious under 35 U.S.C. § 103(a) is a legal conclusion based on underlying findings of fact. *In re Kahn*, 441 F.3d 977, 985 (Fed. Cir. 2006); *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). This Court reviews the Board's legal conclusion of obviousness *de novo*, and the Board's underlying factual determinations for substantial evidence. *In re Kahn*, 441 F.3d at 985; *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

Substantial evidence sufficient to support the factual findings underlying the Board's obvious conclusion requires "something less than the weight of the evidence but more than a mere scintilla of evidence." *In re Kahn*, 441 F.3d at 985. For each factual determination underlying its obviousness conclusion, the Board must cite "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Id.* In reviewing the record to determine whether the Board's factual determinations are supported by substantial evidence, the Court must take into account evidence that both justifies and detracts from the Board's decision. *In re Kotzab*, 217 F.3d at 1369.

The Board's *prima facie* conclusion that the claims at issue here would have been obvious in view of the combination of cited prior art references rests on two factual determinations that are reviewed for substantial evidence. First, the Board was required to cite substantial evidence establishing that there exists some motivation, suggestion or teaching to combine the cited references. *In re Kahn*, 441 F.3d at 985; *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002); *see also Teleflex, Inc. v. KSR Int'l Co.*, No. 04-1152, 119 Fed. Appx. 282 (Fed. Cir. 2005) (unpublished), *cert. granted*, ___ U.S. ___, ___ S.Ct. ___, 2006 WL 1725628 (Jun. 26, 2006). Second, the Board was required to cite substantial evidence establishing that one skilled in the art would have had a reasonable expectation of success that combining the references would lead to the claimed invention. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1164-65 (Fed. Cir. 2006). It is not enough to determine that it would have been "obvious to try" the combination of references. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988).

II. The Board Failed To Meet Its *Prima Facie* Burden By Failing To Cite Substantial Evidence Of A Motivation, Suggestion Or Teaching To Combine Rogers With Either Utsumi Reference.

The Board's finding that all of the elements of the pending claims are present in the combination of the Rogers and Utsumi references is, by itself, insufficient to support an obviousness conclusion. Most inventions arise from combinations of elements that are found in the prior art. *In re Kahn*, 441 F.3d at

986. But unless there is substantial evidence of a specific reason why someone skilled in the art would have been motivated to combine the references without knowledge of the invention, mere identification of each claim element in the prior art is not enough to defeat patentability of the claimed combination of elements as a whole. *In re Geiger*, 815 F.2d 686, 688 (Fed. Cir. 1987).

"[T]o establish a *prima facie* case of obviousness based on a combination of elements disclosed in the prior art, the Board must articulate the basis on which it concludes that it would have been obvious to make the claimed invention." *In re Kahn*, 441 F.3d at 986. The Board is required to put forth specific evidence and reasoning to substantiate its *prima facie* finding of obviousness. *See, e.g., In re Lee*, 277 F.3d at 1343 ("The need for specificity pervades this authority."); *In re Kotzab*, 217 F.3d at 1371 (To meet *prima facie* burden, "particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); *In re Rouffet*, 149 F.3d at 1359 ("[T]he Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination."). "When the Board does not explain the motivation, or the suggestion or teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, we infer that the Board used

hindsight to conclude that the invention was obvious." *In re Kahn*, 441 F.3d at 986.

The Board can meet the "motivation-suggestion-teaching" requirement as part of its *prima facie* obviousness case by citing substantial evidence provided by the teachings of the references themselves, by the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. *Medichem*, 437 F.3d at 1165. Here, the Board relied ***solely*** on alleged "express suggestions in both Utsumi references" regarding certain advantages of PEN over PET. (A0006-7) The Board's conclusory citation to the so-called "express suggestions" in the Utsumi references fail to provide substantial evidence of a motivation to combine sufficient to establish a *prima facie* case of obviousness.

A. There Is No "Express Suggestion" To Replace The PET Layer Disclosed In Rogers' Multilayer Films With PEN, In View Of The Marked Differences Between The Films Disclosed In Rogers And In The Utsumi References.

Neither Utsumi reference teaches any general advantages in the substitution of PET with PEN, let alone advantages that would lead one to replace the PET layers disclosed in Rogers' multi-layer films with PEN. To the contrary, the Utsumi references discuss the use of monolithic, single-layer films of PEN in two specific applications – polarizing plates containing chroic dyestuff and liquid crystal panel substrates – where PET was used previously. The Utsumi references discuss specific benefits of PEN in such applications, without any indication that

PEN could be used as a substitute for PET in any other type of film (much less a multilayer film such as Rogers, with its careful selection of alternating layers of diverse polymeric materials). *See* A0190 (Utsumi '953, col. 1, lines 59-62: "It is an object of the present invention to provide a film for polarizing plates which is superior in weather resistance, tear strength and heat resistance to a stretched polyethylene terephthalate film . . . . "); A0199 (Utsumi '772, col. 2, lines 4-7: "It is an object of the present invention to provide a film for liquid crystal panel substrates which is superior in weather resistance, tear strength and heat resistance to a stretched polyethylene terephthalate film . . . . ").

In contrast, Rogers discloses a multilayer film having hundreds of very thin alternating layers. Rogers' example describes a film coextruded into a multilaminar sheet containing 250 layers. (A0187) In addition to the number of layers, Rogers' films differ substantially from the films of the Utsumi references in terms of optical thickness, processing temperature, amount of stretching and method of manufacture, as summarized in the following table:

Rogers '729	**Utsumi '953 and '772**
Multilayer film – e.g., 250 layers. A0187 (col. 5, lines 55-56)	*Single layer film.* A0190 ('953, col. 2, line 10; col. 8, line 27); A0199 ('772, col. 2, line 23; col. 3, line 52)

Optically thin layers – optical thickness of each layer is equal to one-quarter of the selected wavelength of light or 125 nm for 500 nm light. A0185 (col. 1, lines 51-53); A1086 (col. 3, lines 48-49)	*Optically thick layer* – physical thickness of 10,000 to 250,000 nm. A0193 ('953, col. 8, lines 17-19); A0200 ('772, col. 3, lines 43-45)
Low temperature processing – 30°C. A0187 (col. 5, lines 63-65)	*High temperature processing* – 150-295°C. A0194 ('953, col. 9-10); A0201 ('772, col. 5-6)
Small amount of stretch – 3%. A0187 (col. 5, lines 63-65)	*Large amount of stretch* – 120% – 700%. A0193 ('953, col. 8, lines 47-48); A0194 ('953 col. 10, lines 24-27); A0200 ('772, col. 4, lines 5-6); A0202 ('772, col. 7, lines 17-20)
Coextruded or vacuum deposited. A0185 (col. 2, lines 23-28)	*Extruded.* A0193 ('953 col. 8, line 25); A0200 ('772, col. 3, lines 49-51)

At most, the Utsumi references teach that PEN can be substituted for PET in context of a single layer, monolithic film for the specific applications discussed. Nowhere do the Utsumi references teach or suggest that such a substitution would be useful or successful in a particular layer of a multilayer optical film with hundreds of optically thin coextruded layers, such as the film of Rogers. Simply put, in view of the above differences, the multilayer films of Rogers require different features, properties and materials than do the films of the Utsumi references, so the mere mention of advantages of PEN in the context of the Utsumi references does not provide substantial evidence that one skilled in the art would be motivated to replace the PET layer of Rogers with PEN.

Indeed, neither the objects of the invention recited in the Utsumi references – improved "weather resistance, tear strength and heat resistance" – nor any of the other advantages listed for PEN in the Utsumi references are even mentioned in Rogers. That is because Rogers and Utsumi were dealing with very different films for very different applications, and only with the benefit of hindsight could the Board conclude that a list of advantages of PEN over PET in the Utsumi references constitutes an "express suggestion" to replace the PET layer of Rogers with PEN.

Moreover, Rogers discusses several polymers useful in forming the layers of his multilayer film; PET is only one of them:

> Certain materials readily lend themselves to the coextrusion process and can also be rendered birefringent. These materials include polystyrene polymethylmethacrylate, polysulfone, poly(para-xylylene) and polyethylene-terephthalate.

(A0186) With additional prior art searching, one undoubtedly could find other references that discuss advantages of PEN over one or more of the listed polymers for various uses. Conversely, one undoubtedly could find other uses where one or more of the listed polymers is preferred over PEN. The mere fact that the Utsumi references deal with films for optical applications and discusses advantages of PEN over PET does not mean that one skilled in the art would have been motivated to apply their teachings to the wholly different types of optical films disclosed in Rogers, just because Rogers lists PET as one material suitable for use as a layer in its films. In sum, the mere fact that both Utsumi and Rogers deal with "optical"

films in the most general sense of the word does not constitute substantial evidence that the teachings of Utsumi would motivate one skilled in the art to modify Rogers in the slightest.

The Board's error is similar to that discussed in *In re Fine*, 837 F.2d 1071. In *Fine*, the Board had affirmed the Examiner's obviousness rejections of a claim directed to a system for detecting and measuring minute quantities of nitrogen compounds, *id.* at 1072, based on a combination of prior art references which taught: (1) a system for detecting sulfur compounds; and (2) a nitric oxide detector. *Id.* at 1072-73. The Board affirmed the Examiner's conclusion that substitution of the nitric oxide detector into the sulfur detection system would have been obvious to one skilled in the art interested in measuring nitrogen compounds and would yield the claimed invention. *Id.* at 1073.

On appeal, this Court reversed, holding that the Board had not established a *prima facie* case of obviousness because it had failed to show some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art that "would lead that individual to combine the relevant teachings of the references." *Id.* at 1074. The Court explained that the primary reference focused on unique difficulties inherent in measuring sulfur compounds, without any suggestion that the system could be used to detect nitrogen compounds. *Id.* Moreover, the secondary reference measured the total amount of nitric oxide in an

unseparated gas stream, whereas the claimed system separated each nitrogen compound before measurement. *Id.* at 1074-75. Based on these differences, the Court concluded that at most, it might be "obvious to try" the combination of the prior art references, which is not the standard for obviousness. *Id.* at 1075.

Similarly, here Rogers and the Utsumi references are focused on the unique difficulties inherent in the creation of their respective films. The advantages Utsumi lists for PEN in the context of single layer films are not even mentioned by Rogers as desirable properties for his multilayer polarizing films. And as was the case in *Fine*, here the secondary reference (Utsumi) diverges fundamentally from the claimed multilayer interference film comprising alternating layers of at least a first and second diverse polymeric material. It was only with the benefit of hindsight that the Board concluded that one skilled in the art would read Rogers, and in looking for alternatives to the PET listed as one of several polymers suitable for use as a layer of the multi-layer polarizing film, be motivated to substitute PEN based on Utsumi's description of certain advantages of PEN over PET in a wholly different context.

B. The Board Improperly Disregarded A Key Problem Solved By The Invention – Creating An Improved Multilayer Polarizer Using Readily Available Materials And Established Coextrusion Techniques – That Further Negates Any "Express Suggestion" To Combine Rogers With Either Utsumi Reference.

In addition to the fundamentally different nature of the films themselves disclosed in Rogers and each Utsumi reference, which undermines any motivation to combine the teachings of the references, Appellants also argued in their Appeal to the Board that the coextrusion process preferred by Rogers to create multilayer films raises additional considerations that are not of any concern when making the single layer extruded films of the Utsumi references. (A0154) What Applicants argued was that because Rogers' multilayer film is preferably coextruded and Utsumi's single layer film is not, one skilled in the art would not have been motivated to combine the teachings of Rogers and Utsumi to create the multilayer, preferably coextruded, films of the pending claims. (A0154-55)

The Board dismissed this argument as seeking to distinguish the cited references by relying on process limitations that are not recited in the pending article claims. (A0006, A0007) The Board erred in doing so, which further negates the Board's finding of an "express suggestion" to combine Rogers with the Utsumi references that underlies the Board's *prima facie* obviousness conclusion. *See In re Kotzab*, 217 F.3d at 1369 (review of substantial evidence underlying factual

determinations supporting an obviousness conclusion must include evidence that both justifies and detracts from the Board's decision).

The Board was simply mistaken to assert that Appellants were seeking to distinguish their claims from the cited references based on process limitations. Indeed, they could hardly do so, when their pending claims contain no process limitations and Rogers itself discloses coextrusion as the preferred method of making the multilayer films it describes. (A0185) Rather, Appellants continue to assert that one skilled in the art seeking to make a multilayer film, preferably by coextrusion (as is taught in Appellants' application and in Rogers), would not be motivated to substitute new polymer materials based on the teachings of references dealing only with monolithic, single layer extruded films, particularly when the advantages listed for PEN in Utsumi are nowhere mentioned as issues in Rogers.

Appellants' argument is particularly appropriate in view of the nature of the problem they solved. A primary object of their invention is to provide an improved multilayer birefringent interference polarizer fabricated from readily available materials, including PEN, using established coextrusion techniques. (A0021, A0027, A0029-30) Although coextrusion is not required to make the films of the pending claims, it is the preferred method, it solves the problem faced by the inventors, it is a key object of their invention, and the Board erred by simply ignoring it when considering whether one skilled in the art would have been

motivated to combine the teachings of Rogers with those of the Utsumi references, which have nothing at all to do with coextrusion. *See In re Rinehart*, 531 F.2d 1048, 1053-54 (CCPA 1976) (noting that the prior art's teaching of higher pressures to increase reaction rate was not evidence of motivation to combine if the problem faced by the inventor was not the need for increased reaction rates).

This Court's recent decision in *In re Kahn*, 441 F.3d 977, provides an instructive contrast in demonstrating the proper role in the obviousness analysis of the problem faced by the inventor. In *Kahn*, the Court affirmed the Board's finding of a motivation to combine prior art references where the Board expressly considered the prior art combination from the vantage point of "a skilled artisan confronted with the problem faced by Kahn." *Id.* at 989. The Court went on to explain that a skilled artisan, confronted with the problem faced by Mr. Kahn (the need for a more accurate reading machine for the visually impaired) would have reason to solve the problem of "better control over word localization" by adding acoustic imaging, in view of the prior art's express teaching that two-dimensional sounds can be used, *inter alia*, "to create a 'rudimentary reading device' for the visually impaired." *Id.*

In contrast, here the Board simply disregarded the problem facing Drs. Wheatley and Schrenk. As the *Kahn* Court's analysis aptly demonstrates, the problem faced by the inventors serves to frame the question of what prior art

teachings they would be motivated to combine. For example, there may be uses for which PEN is superior to PET; there may be other uses for which PET is superior to PEN. Without the frame of reference provided by the problem facing the inventors, one has no way of knowing – other than by pure hindsight – whether or not they would have been motivated to substitute one material for the other in the context of their invention.

Here, a key problem facing the inventors was the need for an improved multilayer birefringent interference polarizer that could be fabricated using established coextrusion techniques. In view of this problem, there was no motivation whatsoever to look to the teachings of the Utsumi references, which deal solely with monolayer films and hence say not one word about coextrusion. The problem facing the inventors, and the resulting frame of reference it provides for the motivation-suggestion-teaching requirement, cannot simply be disregarded, as the Board did here.

Moreover, Rogers implicitly teaches away from the substitution of polymers other than those listed. Rogers teaches that "[c]ertain materials readily lend themselves to the coextrusion process" – including PET – suggesting that other materials do not readily lend themselves to the coextrusion process. (A0186; A0154). The Utsumi references contain no mention of coextrusion, let alone any teaching or suggestion as to whether PEN would readily lend itself to the

coextrusion process. At best, it might be obvious to try PEN in place of PET or one of the other polymers listed in Rogers to see if PEN would readily lend itself to the coextrusion process. *See In re Fine*, 837 F.2d at 1075 ("[W]hether a particular combination might be 'obvious to try' is not a legitimate test of patentability.").

In sum, the Board's *prima facie* obviousness determination should have taken into consideration Appellants' coextrusion argument, and that argument provides further confirmation that the Board's finding of an "express suggestion" to combine the cited references is not supported by substantial evidence. Appellants were keenly concerned with solving the problem of inventing an improved multilayer birefringent interference polarizer that preferably could be fabricated using established coextrusion techniques. One skilled in the art, therefore, would not have been motivated to modify Rogers by trying the PEN material disclosed in the Utsumi references, which have nothing at all to do with coextrusion.

III. The Board Failed To Cite Substantial Evidence Supporting a Finding That There Would Have Been a Reasonable Expectation of Success In Combining Rogers With Either Utsumi Reference

Standing alone, the lack of substantial evidence supporting the Board's finding of a motivation-suggestion-teaching to combine Rogers with either Utsumi reference mandates reversal. But there is another, independent factual determination underlying the Board's *prima facie* obviousness determination that

lacks substantial evidence: a reasonable expectation of success in combining Rogers and Utsumi.

"[A]n obviousness determination requires not only the existence of a motivation to combine elements from different prior art references, but also that a skilled artisan would have perceived a reasonable expectation of success in making the invention via that combination." *Medichem*, 437 F.3d at 1165. To establish a "reasonable expectation of success," the prior art must suggest more than just trying numerous possible choices until one skilled in the art possibly might arrive at a successful result. *Id.*; *In re Roemer*, 258 F.3d 1303, 1309-10 (Fed. Cir. 2001) (prior art that gives only general guidance merely meets "obvious to try" standard and does not support *prima facie* case of obviousness).

Here, the record is completely silent as to evidence supporting a reasonable expectation of success in combining Rogers and Utsumi. On appeal to the Board, Appellants argued that in view of the very different applications and corresponding different features and requirements of the Utsumi references relative to the Rogers reference, and the considerations arising from the desire to have the claimed film fabricated by coextrusion, the Utsumi references provide "no guidance" about whether PEN would work in the claimed construction, and at most would have made it "obvious to try" PEN. (A0153-54) Yet neither the Board nor the Examiner provided any evidence or reasoning relative to the requisite reasonable

expectation of success. For this additional reason alone, the Board failed to make out a *prima facie* case of obviousness.

The Board made a similar error in *In re Geiger*, 815 F.2d 686. There, the Board had affirmed the Examiner's obviousness rejections of a claimed method of inhibiting scale formation and corrosion of metallic parts in cooling water systems using three-component compositions, each component of which was disclosed in prior art patents directed to corrosion prevention in water systems. *Id.* at 687. This Court reversed, holding that the Board had failed to establish a *prima facie* case of obviousness. *Id.* at 688. Although each of the claimed components was present in one or more of the cited references, the Court explained that the references provided only general guidance and none of the references specifically taught or suggested a substitution of components to arrive at the claimed combination of three particular components. Indeed, to the extent that the references discussed the use of the claimed components, they pointed toward different purposes and to combinations not covered by the pending claims. *Id.* Based on this record, the Court concluded:

> At best, in view of these disclosures, one skilled in the art might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. § 103.

Id.

Likewise, here at best it may have been obvious to try various polymers, perhaps including PEN, in place of those listed in Rogers. One skilled in the art would have no reasonable expectation that PEN would work in the creation of the claimed multilayer films, because Rogers, the cited multilayer film reference, contains no mention of PEN and contains what appears to be a complete list of suitable polymeric materials, from which PEN is absent. The Utsumi references, on the other hand, are focused on the unique difficulties inherent in the creation of their single layer films, contain no mention of whether PEN is suitable for coextrusion, and list advantages of PEN that are not even mentioned by Rogers as desirable properties for his multilayer polarizing films.

Based on this record, one skilled in the art at the time of Appellants' invention would not have had a reasonable expectation of success in combining Rogers with either of the Utsumi references. The Board made no such finding, which constitutes reversible error because such a finding is required for a *prima facie* case of obviousness, and only impermissible hindsight could support such a finding based on the evidence of record.

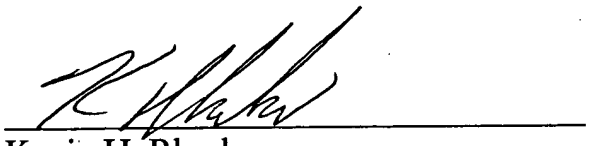
CONCLUSION AND STATEMENT OF RELIEF SOUGHT

For all of the foregoing reasons, Appellants respectfully request that the Court reverse the decision of the Board, hold that claims 30 and 32-35 of the

Application are patentable over the prior art, and instruct the PTO to issue the Application as a United States Patent.

Dated: July 10, 2006

Respectfully submitted,



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ADDENDUM

BOARD OF PATENT APPEALS AND INTERFERENCES

DECISION ON APPEAL

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte John A. Wheatley and Walter J. Schrenk

Appeal No. 2005-2515
Application No. 09/911,532

HEARD: December 14, 2005

Before KRASS, BARRETT, and DIXON, **Administrative Patent Judges**.

DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 30-35, which are all of the claims pending in this application.

We AFFIRM.

BACKGROUND

The appellants' invention relates to a polymeric interference film. A copy of representative claim 30 under appeal is set forth below.

> 30. A multilayer interference film comprising alternating layers of at least a first and second diverse polymeric material, the alternating layers having a reactive index mismatch in at least a first plane perpendicular to the film and having layer thicknesses suitable to reflect light over a range of wavelengths, wherein one of the first and second diverse polymeric materials comprises a polymer selected from the group consisting of polyethylene naphthalate and a copolymer of ethylene naphthalate.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Rogers	3,610,729	Oct. 5, 1971
Utsumi (Utsumi '953)	4,756,953	Jul. 12, 1988
Utsumi (Utsumi '772)	4,799,772	Jan. 24, 1989

Claims 30-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rogers in view of Utsumi '953 or Utsumi '772.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the answer (mailed July 13, 2004) for the examiner's reasoning in support of the rejections, and to the brief (filed April 27, 2004) and for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Only those arguments actually made by appellants have been considered in this decision. Arguments that appellants could have made but chose not to make in the brief have not been considered. We deem such arguments to be waived by appellant [see 37 CFR § 41.37(c)(1)(vii) effective September 13, 2004 replacing 37 CFR § 1.192(a)]. We note that appellants have elected to group ALL claims as standing or falling together at page 3 of the Brief. Therefore, we select independent claim 30 and address appellants' arguments thereto.

35 U.S.C. § 103

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a ***prima facie*** case of obviousness. **See In re Rijckaert**, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A ***prima facie*** case of obviousness is established by presenting evidence that the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. **See In re Lintner**, 458 F.2d

1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the claimed subject matter is ***prima facie*** obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. **See In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. **See In re Warner**, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968). Our reviewing court has repeatedly cautioned against employing hindsight by using the appellant's disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art. **See, e.g., Grain Processing Corp. v. American Maize-Prods. Co.**, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

When determining obviousness, "the [E]xaminer can satisfy the burden of showing obviousness of the combination 'only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would

lead that individual to combine the relevant teachings of the references.'" **In re Lee**, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002), citing **In re Fritch**, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" **In re Dembiczak**, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). "Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact." **Dembiczak**, 175 F.3d at 999-1000, 50 USPQ2d at 1617, citing **McElmurry v. Arkansas Power & Light Co.**, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993).

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." **In re Hiniker Co.**, 150 F.3d 1362,1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations as recited in independent claim 30. We find that independent claim 30 sets forth an article of manufacture having alternating layers of first and second polymeric material.

Appellants argue that Utsumi teaches the use of polyethylene napthalate (PEN) as having advantages over polyethylene terephthalate (PET) as a uniaxially stretched PET film for use in a liquid crystal display or for polarizing plates. (Brief at page 4.) Appellants argue that Rogers teaches the use of PET in a multilayered light polarizer

using two different materials in coextrusion. (Brief at pages 5-6.) Appellants argue that the Utsumi references teach their application as monolithic, single layer films which is very different from the birefringent films of Rogers. (Brief at pages 4-5.) Appellants argue that due to the very different applications and the corresponding different features and requirements of the Utsumi references relative to the Rogers reference, the examiner must have relied upon impermissible hindsight to use PEN in a multilayer film. Additionally, the coextrusion process raises considerations with regards to the coextruded materials that are not of concern when making a monolithic film. Appellants argue that Rogers acknowledges that PET lends itself to the coextrusion process and that this means that other materials do not lend themselves to coextrusion. Appellants argue that since Utsumi does not provide guidance about the use of PEN to a coextrusion process that at most this is an invitation to try which falls short of the standard required for a ***prima facie*** case of obviousness. (Brief at page 5.) We disagree with appellants, find that the claim is directed to an article of manufacture and does not expressly require a specific process, and we find no express limitations which would require a coextrusion process. Therefore, this argument is not commensurate in scope with the instant claim language, and we do not find the argument persuasive.

The examiner maintains that Utsumi '772 and Utsumi '953 teach and suggest that PEN is has advantages over PET and that skilled artisans would have been

motivated to use PEN in the multilayer film of Rogers to replace the PET to improve heat resistance, heat shrinkage ratio, mechanical properties and the degree of polarization. (Answer at page 3 and 5.) (See Utsumi '953 at columns 1 and 7-11; and Utsumi '772 at columns 2, 3, 4, and 8.) From the express suggestions in both Utsumi references, we agree with the examiner that it would have been obvious to one of ordinary skill in the art to have used PEN in place of PET in Rogers to make the multilayer interference film. We find that appellants' arguments to the process of making the film go beyond the express limitations recited in the article of manufacture, and we find no express support for these arguments in the language of independent claim 30. Therefore, we do not find the argument persuasive, and we will sustain the rejection of independent claim 30 and its dependent claims 31-35.

CONCLUSION

To summarize, the decision of the examiner to reject claims 30-35 under 35 U.S.C. § 103(a) is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

ERROL A. KRASS
Administrative Patent Judge

LEE E. BARRETT
Administrative Patent Judge

JOSEPH L. DIXON
Administrative Patent Judge

) BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No. 2005-2515
Application No. 09/911,532

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PROOF OF SERVICE

Pursuant to Fed. R. App. P. 25(d)(2), the undersigned counsel for Appellants hereby certifies that the foregoing Brief of Appellant was filed on July 10, 2006 in accordance with Fed. R. App. P. 25(a)(2)(B) by mailing, via First-Class Mail, postage prepaid, twelve true and correct copies, including the original, to the Clerk of the United States Court of Appeals for the Federal Circuit, at the following address:

Clerk
U.S. Court of Appeals for the Federal Circuit
717 Madison Place, NW
Washington, D.C. 20439

The undersigned counsel for Appellants hereby certifies that two true and correct copies of the foregoing Brief of Appellants were served on Appellee on July 10, 2006 by mailing via First-Class Mail, postage prepaid, to the following address:

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